GRID

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GRID is a technology that allows integrate computational resources from different institutions and use them as if they were a single supercomputer.

Grid technology is still in development but, at present, there are some projects like EGEE that have created GRID infrastructures that are in production and which allow researchers to access more than 80,000 CPUs distributed around the world:

- GStat

To access grid resources it is necessary to request a digital certificate and to register in a Virtual Organization (VO) which is a group of users with similar interests.
Currently, CESGA has a registration authority in which users can apply for a digital certificate and also participates in various GRID projects which can be accessed by CESGA users through the CESGA VO.

Below more information on each project and the steps to join CESGA VO is included.

- RA CESGA
- VO CESGA
- EGEE
- EELA
- FORMIGA
- G-Fluxo
- INT.EU.GRID

RA CESGA

CESGA is a registration authority (RA) valid within the Certificate Authority (CA), pkIRISGrid PKI. The role of CESGA as RA of pkIRISGrid is to validate the authentication of users requesting digital certificates, as for an individual person as for server, if it is requested under the domain 'cesga.es' and the applicant belongs to CESGA, some of Galician universities, a Galician research center or a center of Consejo Superior de Investigaciones Científicas (CSIC).
The user guide for RA CESGA can be downloaded from the following link, RA CESGA user guide, where is explained in detail how to apply, renew or revoke a digital certificate for an individual person or for a server/service under the CESGA as RA of pkIRISGrid.

Before requesting the digital certificate is recommended to read the RA CESGA policy document, RA CESGA Policy, where it can be found the forms to apply for the certificate and where are explained the requirements to apply it.
VO CESGA

Any CESGA's user that wants to use the current grid infrastructure could request to join the CESGA's VO. For more details check the CESGA's VO main page.
EGEE

"The Enabling Grids for E-sciencE project brings together scientists and engineers from more than 90 institutions in 32 countries world-wide to provide a seamless Grid infrastructure for e-Science that is available to scientists 24 hours-a-day. Conceived from the start as a four-year project, the second two-year phase started on 1 April 2006, and is funded by the European Commission."

"The EGEE Grid consists of over 20,000 CPU available to users 24 hours a day, 7 days a week, in addition to about 5 Petabytes (5 million Gigabytes) of storage, and maintains 20,000 concurrent jobs on average."

Useful links:

- Example of how to submit a Gromacs Job to the grid
- Current status in the Iberian Peninsula: GridIce Monitoring Page
- EGEE Public Web Site

EELA

EELA-2 aims to build a GRID infrastructure for large-capacity, scalable and with a maturity level of production, providing distributed computing accessible from anywhere of the world, storage and network as the spectrum born of the scientific cooperation between Europe and Latin America needs.

EELA-2 has a special focus on:

- Offers a full range of services that meet application requirements.
- Ensure long term availability of the facility beyond the end of the project.

An ambitious project would not be possible without the existence of a previous e-infrastructure consolidated and created with the intention to build a sustainable GRID platform. This was the objective of the EELA project (EELA first phase) that provides its users with a stable and well supported Grid-based Resource Centers in 16 (RCs), adding 730 CPU and 60 Terabytes of storage space, proving that the development of a European e-infrastructure/Latin American is not only viable, but meets a real need for a significant part of the scientific community.
FORMIGA

FORMIGA project has designed a platform that can integrate the distributed resources of the computer labs of Galicia universities. To achieve this objective developers has been used a combination of different technologies such as virtualization, GRID technologies and virtual private networks (VPN). One of the main features of the platform is that it allows interoperability with other GRID projects like EGEE, allowing applications to use simultaneously the resources of both infrastructures.

Useful link:

- Formiga project main link..

G-Fluxo

G-Fluxo Project proposes a development environment for workflows, for the use of distributed computing, which allows the use of different applications. Besides, it will simplify the use of computational resources in CESGA or other resources available in grid infrastructures, so that they are viewed by the user as a single environment. At the same time, it facilitates the use of complex scientific software, as computational chemistry software, so it could have an important application in both teaching and research.

Useful link:

- G-Fluxo project main link..

INT.EU.GRID

The int.eu.grid project aim is to "deploy and operate an interoperable production-level e-Infrastructure for demanding interactive applications that will impact the daily work of researchers. The main features of this scientific initiative are:

- Distributed Parallel (MPI) Interactive Computing and Storage at the Tera level

- User Friendly Access through a Grid Interactive Desktop with powerful visualization

- Supporting Virtual Organizations at all levels: setup, collaborative environment, grid enhancement of applications, execution and monitoring tools, discussion of results."

Useful links:

- Current status: GridIce Monitoring Page

- int.eu.grid Public Web Site